

THE AMERICAN JOURNAL OF OPHTHALMOLOGY

EDITED AND PUBLISHED MONTHLY BY
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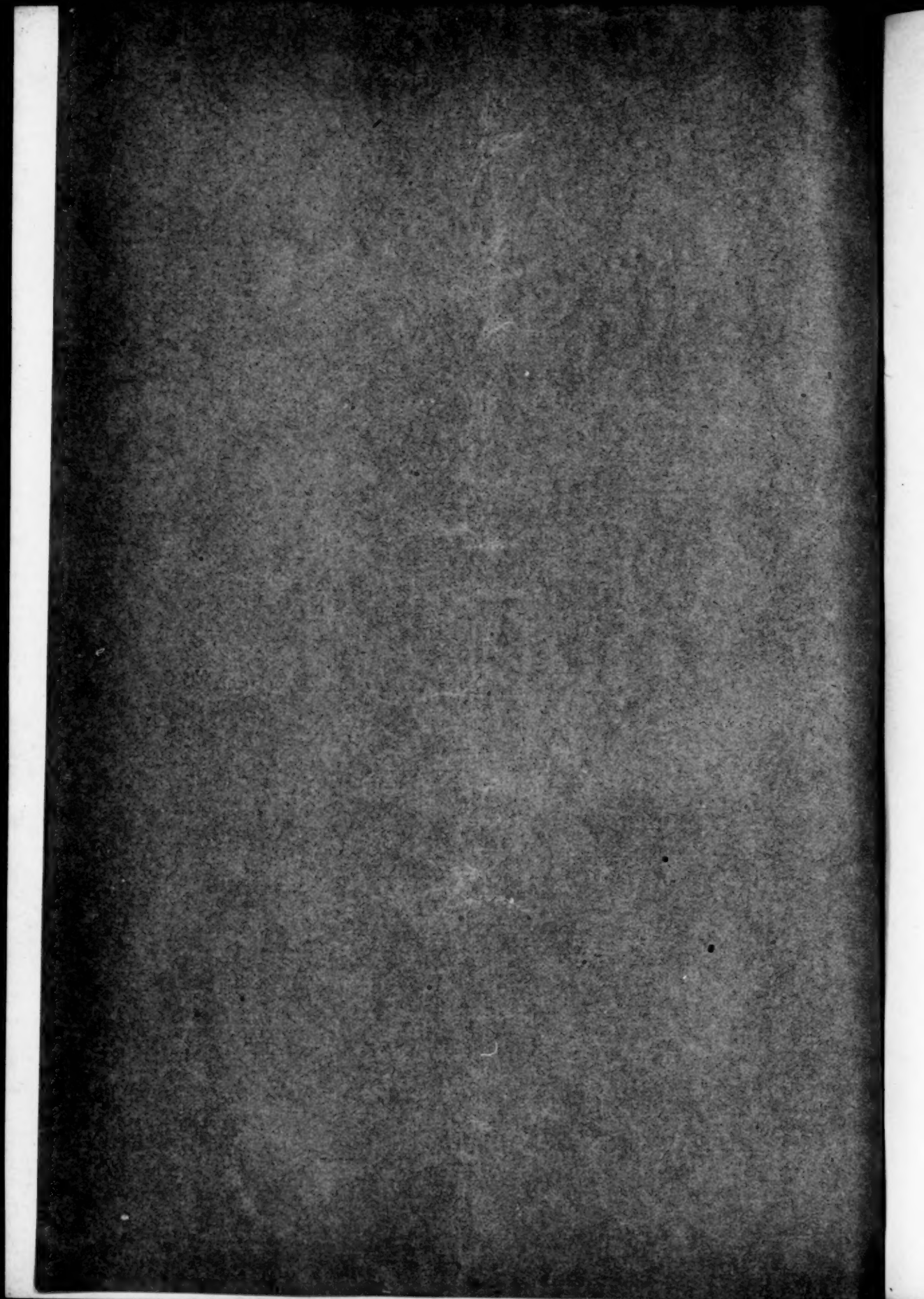
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THE AMERICAN JOURNAL OF OPHTHALMOLOGY

VOL. XXXIV.

MAY, 1917.

No. 5

ORIGINAL ARTICLES.

INTRAOCULAR FOREIGN BODIES.*

BY E. H. HIGBEE, M.D.,
ST. LOUIS, MO.

A great deal has been said and done about foreign bodies that have injured eyes. Those that have penetrated the eye, of course are the most serious, and ways and means of removing them have been devised as early as 1646, when Fabricius Hildanus reported having used the magnet successfully in removing a foreign body from the interior of the eye. Others reporting similar cases are Milhes in 1844, Morgagni in 1779, and Humley in 1843. Dixon employed the magnet in ophthalmic surgery in London in 1859. Since then magnets of different construction have been made by Hirschberg in 1877, Snell in 1881, Gruening in 1880, and Bradford in 1880. Sulzer in 1894 modified Hirschberg's magnet, making one of horse-shoe shape. Hubbell in 1884 devised one of the same shape as Bradford's, but of much greater strength. Haab, in 1892, at the meeting of the Ophthalmological Society in Heidelberg, first presented his giant magnet, which was the most powerful that had been produced—all previous forms had been made to come in direct contact with the foreign body. Haab's magnet was designed to overcome this disadvantage and was capable of acting within a radius of a little over an inch. His method was to draw the foreign body through the suspensory ligament of the lens into the anterior chamber, obviating the necessity of putting the point of the magnet into the vitreous body.

The advent of the X-ray in ophthalmology greatly facilitated

*Read at the May meeting of the St. Louis Ophthalmic Club.

the work of the magnet, in that it localized the foreign body. As late as 1896 Darier and Rochas contended that the X-rays would not penetrate the transparent media of the eye, but later work by Van Duyse, Lewkowitch, and finally by Williams of Boston, demonstrated that a skiagram could be taken and that the foreign body would throw the necessary shadow for a localization.

Many methods have been devised for localization. Quoting from the American Encyclopedia of Ophthalmology: "Exner attempted to devise a scheme of localization by employing two lead discs perpendicular to each other as fixed points, so as to have known points for triangulation. Dohlfort and Pohot experimented with shot and pieces of wire introduced in the orbits of cases of phthisis bulbi and from these located a piece of steel 3x1 mm. in the globe. DeSchweinitz obtained an approximate localization by reference to the bony landmarks and removed a foreign body 4x2 mm. weighing 7-16 grain. Friedenbergr took two negatives at right angles to each other.

At the meeting of the American Ophthalmological Society in 1897 several papers were presented. Williams Thompson reported a case in which the localization had been done by Sweet. Oliver reported three cases in which the localization had been done by a method devised by Leonards after Exner's method of triangulation. Sweet gave his method with two metal indicators, which was the first accurate method of localization. Since then many other methods have been devised, all based on geometric calculation, giving remarkably accurate results. The method of trying to determine the presence of a foreign body in the eye with the magnet, of course has become obsolete owing to the X-ray, but its use for removing magnetizable material is of untold value.

I think most of us have accepted Sweet's method of localization as the most perfect. In 1909 he devised a simplified method in which the apparatus is such that measurements do not have to be taken; the negative is simply placed upon a plate of "focal co-ordinates," and the readings are taken direct. The Encyclopedia gives an accurate description of this method.

The methods of removing a foreign body after it has been localized are different and have brought forth arguments favoring the scleral incision (counter puncture), and the anterior chamber route, both having their followers.

My experience, based on the results of 217 cases, has led me

to believe in the counter puncture. In over 90 per cent. of my cases I have found the foreign body lying well back in the vitreous body and close to the eye wall or imbedded in one of the tunics of the eye. One of the contentions of those who advocate the anterior chamber route is that the vitreous body should not be injured any more than it already has been, as the shock of the foreign body entering it interferes very much with the eye's nutrition. Then I say, why disturb it a second time by trying to draw the foreign body back into the anterior chamber? Its route will no doubt be different from the route of its entrance, and while you no doubt disturb the vitreous body some with a counter puncture, it is not as severe as the passage of the body back into the anterior chamber.

The method advocated for the anterior chamber route consists of three applications of the magnet, after an incision is made in the cornea.

1st. The magnet is placed at the center of the cornea. When the body is drawn up to the lens or against the iris, the magnet is removed and the body allowed to gravitate downward, if it is not already at the lens margin.

2nd. The magnet is applied to the top of the cornea at an angle to draw the body up through the suspensory ligament into the anterior chamber and the magnet is removed again.

3rd. The magnet is now applied to the hole, which has been made in the cornea, for the purpose of drawing the body through it. It is not hard to imagine what could take place in the operation. First of all, suppose the body lies just within the retina or deeper tunics. There would be a much greater danger of detaching the retina than by doing a counter puncture, when a clean wound would tend to attach down the retina instead of detaching it. What of the damage that might be done to the posterior capsule of the lens? Certainly it does not take much to injure it, and the force sufficient to carry the body forward could easily do considerable damage.

Then, again, take the injury that can happen to the iris. I have seen and heard of several cases in which the iris has been torn badly and in one case completely detached. There is the necessity of cutting the cornea and often of doing an iridectomy, and in a great many cases the lens has to be removed later. It is suggested that the corneal incision be made before applying the magnet. What about those cases in which the body is so small or so far back that the magnet does not exert sufficient

force to dislodge it or bring it forward? The counter puncture has to be resorted to then. The scleral route is so simple since it is so easy to accurately localize the body that I think the majority of ophthalmic surgeons use this method now. McKeown and Hirschberg advocated and used this method, introducing the tip of the magnet into the vitreous body and searching for the foreign body.

The operation I perform and which is best described in the Encyclopedia, is at present performed as follows:

After an accurate X-ray localization of the foreign body, the patient is placed upon the operating table and the eye prepared as for any important globe operation. Cocain anæsthesia is usually sufficient, though at times general anæsthesia may be better but I have never found this necessary.*

The conjunctiva is incised in the location of the foreign body and the sclera bared, avoiding as much as possible the recti muscles. Then an incision over the foreign body is made directly through the sclera, choroid and retina, as cautiously as possible and in a meridional direction (that is parallel to the recti muscles) for the reason that these wounds bleed less than those cut across the choroidal vessels, and gape less, on account of the fact that the pull of the recti muscles does not open them. The tip of the magnet (Sweet's or Hirschberg's) is inserted in the wound and usually the particle can be withdrawn with ease.

The wound is then closed with catgut sutures if it be a large one, and in many cases I have made such a small wound that it was only necessary to close the conjunctiva.

My conclusions are that the scleral route is a much simpler method than the anterior chamber route.

The danger of infection is no greater in the scleral route than in the anterior chamber route, providing the proper precautions in regard to sepsis are followed out; and I wish to say that I have not in all my cases had sepsis following one of these operations. That fewer complications are met with by the scleral route. That detachment of the retina is not to be feared in the scleral route, as my experience leads me to believe that clean wounds in the globe are rarely complicated with detachment, and that in those cases of detachment with a wound, the latter has been caused by some large and blunt instrument that had a

*I attribute my good results a great deal to the fact that these 200 patients are all steel mill employes, the majority coming from the chipping room, and statistics show that these chips are sterile almost without exception.

great deal of force behind it, the body itself being seldom found within the eye.

That the small magnet is easier to handle than the giant magnet. That there is just as much destruction in the anterior chamber route as in the scleral route and just as much danger of the retinal cicatrix causing degeneration of the globe.

I have been able to follow up all of these cases for a period of at least three months and in a number ranging up to seven years, so I feel my summary is fairly complete.

Summary—

Detachment	8 cases
Enucleations	5 cases
V. 20/20	42 cases
V. 20/40	49 cases
Useful vision	76 cases
No vision but eyeball retained.....	20 cases
<hr/>	
Total.....	200 cases

I would like to recommend here localization by means of the ophthalmoscope, under full mydriasis in all cases in which it is found possible. I have just had a case in which the X-ray localization (due to the fact, that the patient was absolutely unmanageable when the picture was made, and instead of looking straight forward turned his eyes upward) showed the foreign body at the center of the cornea; while with the ophthalmoscope I could see it in the lower part of the eye. As the piece was quite long and had not entered the eye in its entirety I could feel it with my finger, and succeeded in removing it with comparative ease.

TWO POINTS OF CONTROVERSY IN MAGNET
EXTRACTION OF FOREIGN BODIES FROM
THE VITREOUS CHAMBER.*

By H. D. LAMB, M.D.,
ST. LOUIS, MO.

The first question is which magnet is preferable, and the second which route is the most desirable?

Now as to which kind of magnet, I mean in general whether a small or hand one as that of Hirschberg, Sweet or Johnson, or a large one as that of Haab, Volkmann or Mellinger.

Selection of the magnet for our work depends largely upon the size and location of the foreign body, although the route chosen will of necessity have some influence.

Türk for comparing the relative strength of large and small magnets made very careful and exhaustive tests with the Haab and Hirschberg models. He found that in general for splinters from 1 to 250 mg. in weight, when the splinter is in direct contact, the power of the Hirschberg is but little less than that of the Haab. At 2 mm. distance from the splinter, however, the Haab magnet is from 7 to 21 times as attractive for splinters weighing 1 to 250 mg. as the Hirschberg, and the more the distance is increased the more favorable become the readings for the Haab magnet.

Barkan, Sweet, and the Meyrowitz Co. have also made tests with the Hirschberg and Haab magnets to compare their relative strengths. The results of all these experiments seem to definitely establish the great superiority of the Haab magnet in attracting small foreign bodies at a distance of 5 mm. or more from its tip. Where the magnet-tip can be brought within 5 mm. of the foreign body, it is only necessary to use a large magnet if the particle is very small—1 mg. or less. For larger particles within 5 mm. the advantages of a hand magnet are very great, in that it is more easy to handle, and the foreign body can be more gently detached, and drawn through the tissues with less disturbance.

Of course in some cases where the foreign body has been for some time in the vitreous and has become encapsulated by fibrous tissue, the small magnet, although applied within 5 mm. of the particle, may fail to extract it, and recourse should then be had to the giant magnet similarly applied. If the giant mag-

*Read at the May meeting of the St. Louis Ophthalmic Club.

net fails likewise, there should then be attempted Jackson's operation with scissors and the large magnet.

So much for the first question for which rather definite and indisputable rules can be laid down.

On the second question as to which route—the scleral or anterior chamber one—is the best, there is much difference of opinion.

No difference of opinion, however, exists where a scleral wound is still open, or where the foreign body is very large or very rough and jagged; for all agree that in such circumstances the scleral route is much the best. Extraction of a foreign body from the vitreous through a recent wound at the corneo-scleral region by the giant magnet has been accomplished with complete aniridia in three cases reported by Drs. Woods, Alt and Ohly.

The advantages of the scleral route are mainly in the ease with which the foreign body is removed and the consequent lack of traumatism to the eye.

Its disadvantages as set forth by its disclaimers are the danger of infection by exposure of the vitreous, the greater probability of choroidal hæmorrhage, the liability of subsequent retinal detachment, the degeneration of the globe through interference with the vitreous, and the presence of the retinal cicatrix.

Advantages of the anterior chamber route claimed by its advocates are its safety, the wound in the limbus heals with less disturbance than that of the sclera and with no subsequent dangers, the possibility of infection is less, the probability of retinal detachment and choroidal hæmorrhage is avoided in greater measure, and the nutrition of the vitreous is less interfered with.

Opponents of the anterior route state its disadvantages as being the danger of entangling the foreign body in the ciliary body or the iris, the undesirability of a second excursion of the particle through the vitreous, the danger of further wounding the lens, and finally, the violence apt to be done the eye by the use of the giant magnet.

The defenders of the anterior route claim its disadvantages are almost always the result of improper technique.

Sweet has repeatedly emphasized that it is difficult to make a satisfactory comparison of the value of operation by the two methods, since the ultimate result depends on a number of factors, which are of as great if not greater importance than the method of extraction.

Nevertheless, in spite of this rather obvious state of affairs, the writer will attempt to give some idea of the line-up of the authorities on the two methods.

It will at once be seen in these statistics of different surgeons that they are not directly comparable by any means. But since about 75 per cent. of the foreign bodies that get into the eye lodge in the vitreous chamber, and that about 75 per cent. of these are iron or steel particles, we will at least get some kind of approximate estimate in our comparative figures, where all foreign bodies in all parts of the eye only are given.

Advocates of the anterior chamber route, large magnet operation, or Haab's method—

Haab in 1902 gave the results of his first ten years' experience with his magnet. Of 134 cases of foreign bodies in the vitreous, 83 per cent. were extracted; 165 cases in all were tabulated, of which 33 per cent. had vision of $1/4$ or better.

Schmidt-Rimpler, in 1904, reported 38 cases, 28 of which were vitreous ones, and of all the 38, 92 per cent. of the foreign bodies were removed and 37 per cent. had final vision better than $1/3$.

Fisher, in 1903, 150 cases, of which 65 per cent. were extracted and 65 per cent. resulted in "good" vision.

H. Knapp and Stoll, in 1908, 66 cases, of which 77 per cent. were removed and 17 per cent. had final vision better than $6/15$.

Knapp thinks a scleral incision should be avoided.

Thomson says enough cases have been observed by competent authorities to make it obvious that retinal detachment occurs more frequently than is generally supposed by the scleral operation, and he thinks that when the foreign body enters through the cornea there seems no longer any question but that its removal through the anterior chamber is the most desirable.

Marple extracts through the anterior chamber when the foreign body has entered that way; and he is certain he extracts more foreign bodies via the anterior chamber than through the sclera.

Weeks thinks in many cases we will do less injury by removing the foreign body through the anterior chamber, and he says that in not a few cases the removal of a foreign body by this method is attended by almost no traumatism.

Callan had several retinal detachments by the scleral method, but since Haab has brought out his method, he has followed that procedure, and except in a very few instances has been success-

ful. He says: "By long odds in my estimation Haab's method is the best."

Morax prefers this method, believing that it conserves best the delicate ocular tissues, and gives the best chance of avoiding the risks of infection.

Whiting and Goulden, at the front in France, have adopted the operation via the anterior chamber because they think the after-results are better by this method, and in their service a considerable number of the foreign bodies being non-magnetic, the scleral operation would therefore entail in many cases an unnecessary incision in the eyeball.

Other supporters are von Schlösser, Deutschmann, Wagenmann, Schreiber, Sachs, Weil and Barkan.

Advocates of the scleral route, small or hand magnet operation, or Hirschberg's method—

Hürzeler, in 1894, published a report on 313 cases collected from the literature of foreign bodies in the vitreous, of which 65 per cent. were removed through the sclera and 22 per cent. had preservation of good vision.

Hirschberg, in 1900, presented 100 cases, of which 65 had foreign bodies in the vitreous; 45 per cent. of the vitreous cases were operated by the hand magnet with success.

Andresen, in 1903, collected 346 cases from the literature, in 65 per cent. of which the foreign body was extracted and 20 per cent. had final vision 1/10 to 1.

Hellgreen, in 1901, described 60 cases treated in the clinic at Stockholm, where the foreign body was in the vitreous, 72 per cent. were removed, and 20 per cent. resulted finally in useful vision.

Sweet, in 1913, published a summary of all his foreign body cases, 982 in all, but 402 of these showed no foreign body by the X-ray, leaving 580 definite foreign body cases. Of these 580, 83 per cent. contained iron or steel particles, and 78 per cent. of the 580 cases were vitreous ones; in 65 per cent. of the 580 the particle was removed, in all the vitreous cases, by the scleral method, except in a few isolated instances. 11 per cent. of the 580 foreign body cases had vision 6/12 or better, and 19 per cent. at least 6/60. In this article Dr. Sweet includes a list of 60 foreign body-in-the-vitreous cases all of which had been observed for at least 2 years after the magnet operation; 75 per cent. of

these had vision worse than 5/200, and 20 per cent. had vision 6/30 or better; 10 per cent. showed retinal detachment.

Sweet believes this method produces less traumatism to the structures of the eyeball. He thinks detachment of the retina occurs at the point of lodgment of the foreign body in the choroid or retina by the inflammation and subsequent contraction of new-formed tissue, where the parts have been injured by a fairly large-sized body. Or detachment results if a smaller body has remained for some days or weeks and considerable traumatism has followed the drag of the magnet in disengaging the body from the exudate in which it is embedded. In the cases in which clear media permit an examination of the retina, detachment of the retina at the site of the incision in the sclera has not been found by Sweet.

DeSchweinitz states that his experience with the operation has been most favorable.

Risley thinks this procedure the safer for the reason that a shorter canal in the vitreous is thus traversed, and if the body is impure the extent of infected area is less.

Holt is inclined to think there are but few Americans using the large magnet and that the number will steadily diminish.

Ziegler thinks the scleral route is the best in the majority of cases, and he almost invariably resorts to it.

Jackson thinks there is much routine use of the large magnet without any previous attempt at localization or determination of the size of the body, which proceeding he strongly condemns.

Ohly, in 1916, presented 10 foreign body cases of his own in which he says he had the best results with the posterior method. He appends a fairly complete bibliography of the subject.

Neutral observations—

Mayweg, in 1902, reported 92 cases operated by himself, of which 72 had foreign bodies in the vitreous. Of these 72, 47 were extracted by the scleral route, of which 19 per cent resulted in vision 1 to 2/3; 26 per cent. in vision 2/5 to 5/70; 25 of the 72 were removed by the anterior method, of which 8 per cent. had vision 1/2, and 24 per cent. vision 3/5 to 5/70—much in favor of the scleral incision.

Goulden, in 1908, published a list of 118 magnet cases treated at Moorfields. Twenty-six submitted to operation by the small magnet—all successes, with vision 6/24 or better in 46 per cent. of the 26.

Ninety-two operated by the large magnet with 87 per cent of

foreign bodies removed, and of the 92 45 per cent. had vision at least 6/24; results here better for the large magnet because of much the greater number were operated with it.

MacCallan, in 1902, compared 39 cases operated by Haab's method with 18 cases operated according to Hirschberg. Of the 39 strong magnet cases, in 90 per cent the body was removed and 31 per cent resulted in "good" vision. The 18 cases with the small magnet were all successful, with 16 per cent. good vision—thus favoring the large magnet operation.

In conclusion it seems best to evade any definite statement, and to say that every such case is one by itself and the method of extraction should be suited to the individual case. It can hardly be denied by anyone that both the large and small magnets are necessary in an oculist's armamentarium, for whatever method of extraction is favored, each magnet will at times be found of most value. The latter statement both Hirschberg and Haab concede to be true.

Whoever wishes to thoroughly investigate the subject is referred to Wagenmann's article in the Graefe-Saemisch Handbuch with its 574 references to the literature on magnets and their application.

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AN ATTACK OF ACUTE INFLAMMATORY
GLAUCOMA CAUSED BY HOLOCAIN.*BY H. S. HUGHES, M.D.,
ST. LOUIS, MO.

Mrs. C., age 34, presented herself January 27th, 1905, complaining of frequent attacks of dull low grade pain in the eye globes and supraorbital region. Externally the eyes were practically normal. Vision and refraction, O.D.=6/5, Mh=+2.50; O.S.=6/5, Mh=+1.75.

Ophthalmoscope negative. Visual fields for form and color normal. Tension, distinctly above normal, which, taken together with the patient's history, caused a diagnosis of glaucoma simplex to be made. I ordered 1 per cent. pilocarpin solution, which controlled the patient's symptoms nicely.

August, 1908.—Patient returned for measuring of the refraction. There were occasional returns of the above symptoms, but they were always controlled by the pilocarpin.

October, 1909.—Patient had a slight glaucomatous attack in O.D. Fields normal. The ophthalmoscope reveals slight excavation. The attack yielded to medicinal measures. Patient declined an operation.

I will skip over the frequent uneventful returns to the office made by the patient. These visits were usually for refraction; but her history shows a steadily increasing persistence of the ocular hypertension. Her fields, central vision and even papillæ, remained much the same. It took stronger and more frequent doses of the pilocarpin to hold her pupils and tension down. Patient would not listen to suggestions of operative interference.

February 7th, 1917.—Vision as above. Anterior chamber shallow. Pupils 3 mm. in the light. Fields normal. Blood-pressure=110, systolic. General health fine. Ophthalmoscope shows shallow excavation in both. Tonometric reading with a McLean tonometer, R.=45 MM of HG.; L.=36 MM of HG.

Before taking this, I instilled two drops of fresh 1 per cent. holocain hydrochloride solution in each eye. The right eye seemed sensitive, so I later put an extra drop on the right cornea. Patient went home and two hours later began to develop severe pains in and around both eyes. In another two hours, she was semi-delirious. Meanwhile, I had gone out of town. When the

*Read at the May meeting of the St. Louis Ophthalmic Club.

long-distance message reached me I felt very much like staying out of town indefinitely. Yet they would not call another oculist, and so I ordered 1 per cent. eserin every hour with hot fomentations. I saw the patient eight hours after the attack's onset, she then had a most beautiful acute inflammatory glaucoma, particularly of the right eye. By this time it took large doses of morphine to control the patient.

Under the energetic use of eserin, hot packs, massage and purgation, the symptoms subsided. A few days later I did an iridectomy upon the right eye. Recovery was uneventful except the presence of an unusual amount of photophobia and lacrimation. The right V. was reduced to 6/20; left V. 6/5. There seems no hypertension present in either eye, though needless to say I have not taken any more tonometric readings.

I can attribute the onset of this attack to but one of three things:

First. A profound mental impression may have been made upon the patient by putting her upon a table and working over her with the tonometer, to such an extent as to depress her sympathetic nerve poise with the above result.

Second. She might have been developing this attack the day she came to the office and my investigation may have been unfortunately coincidental.

Third. The holocain used anaesthetically may have been responsible.

The first seems improbable to me. The patient did not seem the least bit nervous or even to require the usual little reassuring explanation we are apt to offer a patient who is undergoing an unusual or disagreeable test. She also says it made no unpleasant impression upon her mind at the time. Second, the amount of tension registered and the appearance of the eye at the time of the examination did not suggest an attack in process of development; so I am left to the conclusion that three drops of 1 per cent. holocain solution precipitated an attack of acute inflammatory glaucoma in my patient.

I have not gone through the literature, but the only case in which the instillation of holocain produced an acute attack of glaucoma, which I can recall, is one reported by Gjessing in 1913. In this instance, an acute glaucoma occurred fifteen or twenty minutes after using a solution of holocain and zinc.

A CYSTIC TUMOR OF THE HYPOPHYSIS CEREBRI,
WITH OPTIC NERVE ATROPHY.*

BY H. S. HUGHES, M.D.,

ST. LOUIS, MO.

Mr. T., lawyer, age 33. Patient says that during summer of 1914, coincidental with and following a severe mental shock, he noticed a numb tingling sensation in the occiput followed by a terrific headache radiating from the occiput through the high temporal region. This reoccurred at irregular intervals without any apparent cause. A few months later, while in his library, he noticed if he stooped over in a certain position, that he could not read the titles of books upon the lower shelf. Vision would flicker and faint red blurs would appear upon the pages of his reading matter.

In January, 1915, vision of left eye suddenly failed until patient could barely distinguish forms. Combined with this was a desire to sleep day and night. Vision remained so perhaps two months, then returned rather rapidly, until by April vision in left eye seemed about normal. Soon thereafter the right eye failed much as had the left before it. Patient consulted various physicians, who, he said, told him various things.

In July, 1915, an oculist of Springfield, Ills., made a diagnosis of toxic amblyopia and placed the patient upon strychnia up to 1-5 gr. daily. Immediately the headache returned and became almost unbearable, and remained so as long as he took the strychnia, which was three months; but he says the treatment seemed to improve his general and ocular condition so he stood it until the pain became unendurable. From this time on vision fluctuated, first one eye then the other having periods of semi-blindness. Patient noticed that at such times he could not see objects in the temporal field. This was true of either eye.

Early in January, of 1917, his headaches began to return, but different in character from the ones mentioned above. Says they now seemed to center in the frontal region, radiating back around head with the sensation of an iron band around the skull. I saw the patient February 15th, 1917, when his ocular condition was as follows. Vision O.D.=detection of large shadows; O.S.=6/40. Pupils dilated; right about 5 mm.; left about 4

*Read at the May meeting of the St. Louis Ophthalmic Club.

mm. Pupillary reaction O.D., reacts only to consensual light stimulation; O.S. very sluggish to direct. Ophthalmoscope= simple optic nerve atrophy in both, right more pronounced than the left.

The fields taken, the right only crudely because of the reduced visual acuity, but sufficient to determine the shadows were seen only in the nasal field. The left eye, roughly speaking, shows a contraction of the field down to within 45 degrees of the fixation point to the temporal side, about the same below, 30 degrees above and 10 degrees to the nasal side.

Patient was referred to Dr. Engelbach, from whose report I will now read extracts:

"There are about ten men here to-night more able to discuss this case than I, but it has been an interesting one to me for several reasons. It seems almost classic in its symptomatology.

"While Cushing calls attention to the danger of considering the presence of a bitemporal hemianopic defect in the fields necessary for a diagnosis of a pituitary involvement, still the fact remains that such defects are usually present in degree in the great majority of these cases. In this particular case the bitemporal hemianopsia was so clearly defined, the patient had charted it out himself.

"The pseudo-obesity, polyuria, somnolence are almost equally as clearly defined as are the field defects. While I realize the uncertainty involved in organo-therapy, I wonder if it is not the chief therapeutic indication at this stage. As regards the choice of operations and their technic, I think the comments of some of you will be much more valuable than mine, especially in the case of Dr. Shoemaker, who has had some early experience in this field."

MEDICAL SOCIETIES.

PROGRAM OF THE SECTION OF OPHTHALMOLOGY MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

To be held at New York City, June 6th to 8th, 1917.

1. Chief function of the oblique muscles of the eye. Observations which seem to lend support to a long discarded theory. S. Theobald, Baltimore.
2. Binocular single vision, leaving out the color perception and the problems of strabismus. E. E. Blauuw, Buffalo, N. Y.
3. The treatment of hypopyon keratitis. F. H. Verhoeff, Boston, Mass.
4. Further study of the effects of heat on the eye. W. E. Shahan, St. Louis, Mo.
5. Crystalline deposits in the eye. F. Park Lewis, Buffalo, N. Y.
6. The anaphylactic basis of sympathetic ophthalmia. An experimental study. A. C. Woods, Philadelphia, Pa.
7. Oxycephalus. Report of three cases with operation in one. A. J. Bedell, Albany, N. Y.
8. Endonasal operation on the lacrimal sac. W. B. Chamberlin, Cleveland, Ohio.
9. Neurologic perimetry and a method of imitating daylight with electric illumination. C. B. Walker, Boston, Mass.
10. Conical cornea or anterior myopia. E. Jackson, Denver, Col.
11. A new operative method for the relief of advanced cases of keratoconus with report of two cases. Meyer Wiener, St. Louis, Mo.
12. Observations on hereditary syphilis in patients with interstitial keratitis. A. Post, Boston, Mass.
13. Interstitial keratitis, with special reference to the end-result. G. S. Derby, Boston, Mass.
14. Present status of corneal transplantation. Some experimental data. S. Walker, Jr., Chicago, Ill.
15. Tendon shortening. Author's method. H. H. Briggs, Asheville, N. C.

16. Tendon transplantation of the eye muscles. H. W. Woodruff, Joliet, Ill.

17. Lymphatic-nodular keratoconjunctivitis (phlyctænules). L. J. Goldbach, Baltimore, Md.

18. Pathogenesis of ophthalmia eczematosa. M. Goldenberg, Chicago, Ill.

19. Intracapsular extraction of senile cataract. An early analysis of one hundred and forty-six consecutive cases. A. S. Green and L. D. Green, San Francisco, Cal.

The following clinics will be held:

Monday Afternoon, June 4th.

Bellevue Hospital—

1:30 p.m.—Operations: Dr. J. M. Wheeler.

3:00 p.m.—Operations: Dr. C. H. May.

4:30 p.m.—Operations: Dr. J. Wolff.

Brooklyn Eye and Ear Hospital—

1-2:30 p.m.—Clinic operations, iridodialysis, ptosis. Dr. P. Chalmers Jameson.

Clinic: external diseases, anomalies. Dr. James W. Ingalls.

Clinic: retinitis circinata. Dr. John Ohly.

2:30-4 p.m.—Clinic: cataract extractions, iridectomies. Dr. William H. Snyder.

Clinic. Dr. Fred D. Bailey.

Clinic: fundus. Dr. P. Chalmers Jameson.

4:00 p.m.—Clinic: Elliot's trephining operation. Dr. Willard G. Reynolds.

City Hospital, East 53rd Street Ferry (hour and half-hour)—

2:30 p.m.—Operative clinic. Dr. A. N. Strouse.

Eastern District Hospital—

Clinic. Dr. George Deely.

Harlem Eye, Ear and Throat Hospital—

2:00 p.m.—Clinic. Dr. C. B. Meding.

Herman Knapp Memorial Eye Hospital—

2-4 p.m.—Muscular cases. Dr. Duane.

2 p.m.—Nasal operations connected with eye diseases. Dr. G. Tieck.

3-5 p.m.—Operative clinic. Dr. A. Knapp.

Manhattan Eye, Ear and Throat Hospital—

2-4 p.m.—1. Demonstration: mounted pathologic specimens. 2. Wassermann and other serological reactions. 3. Food and pollen allergy (sensitization) with sensitized patients: demonstration and tests. 4. Demonstration: blood culture plates. Dr. W. C. Dwyer, pathologist.

X-ray laboratory exhibit. Dr. F. M. Law, roentgenologist.

1-3 p.m.—Clinic. Drs. Herbert Wootten, David Webster.

3-5 p.m.—Clinic. Dr. J. Edward Giles.

New York Eye and Ear Infirmary—

1-2:30 p.m.—Clinic. Dr. L. A. Callan.

2:30-4 p.m.—Clinic. Dr. R. G. Reese.

4 p.m.—Clinic. Dr. W. E. Lambert.

New York City Children's Hospital and Schools (Randall's Island, East 125th Street Ferry)—

2-6 p.m.—Clinic. Dr. Martin Cohen.

Polyclinic Hospital—

2-3:30 p.m.—Clinic. Dr. Earle Conner.

Post Graduate Hospital—

1-3 p.m.—Clinic. Dr. A. E. Davis.

3-5 p.m.—Clinic. Dr. E. M. Alger.

Tuesday Morning, June 5th.

City Hospital (East 53rd Street Ferry) on hour and half-hour—

9 a.m.—Clinic. Dr. D. H. Wiesner.

Herman Knapp Memorial Eye Hospital—

9:30 a.m.—Operations. Dr. Erwin Toeroeck.

11 a.m.—Intraspinal and intracerebral medication with salvarsan. Drs. Wardner and Schoenberg.

Manhattan Eye, Ear and Throat Hospital—

9-12 a.m.—1. Demonstration: mounted pathological specimens. 2. Wassermann and other serological reactions. 3. Food and pollen allergy (sensitization) with sensitized patients: demonstration and tests. 4. Demonstration: blood culture plates. Dr. J. G. Dwyer, pathologist.

X-ray exhibit. Dr. F. M. Law roentgenologist.

New York Eye and Ear Infirmary—

10:30-12 a.m.—Method for locating foreign bodies in eye and orbit. Dr. G. S. Dixon.

Post Graduate Hospital—

10-12 a.m.—Laboratory: method of teaching in the ophthalmic school. Dr. Martin Cohen.

Tuesday Afternoon, June 5th.

Bellevue Hospital—

1:30 p.m.—Operations. Dr. J. Wolff.

3 p.m.—Operations. Dr. C. H. May.

4:30 p.m.—Operations. Dr. J. M. Wheeler.

Brooklyn Eye and Ear Hospital—

1-2:30 p.m.—Laboratory and X-ray demonstration: foreign bodies and localization. Pathologic specimens. Dr. Francis A. Hulst.

Strabismus clinic. Dr. Edward W. Wright.

Clinic: glaucoma. Dr. Nelson L. North.

Clinic: fundus. Dr. David Webster Meyer.

2:30-4 p.m.—Clinic: cataract extractions, iridectomies. Dr. J. Scott Wood.

Clinic. Dr. Henry H. Waugh.

Clinic: leprous keratoiridocyclitis; other rare cases. Dr. William Simmons.

4 p.m.—Clinic: removing intraocular foreign bodies. Dr. John Ohly.

Clinic. Dr. Mausert.

Harlem Eye, Ear and Throat Infirmary—

2 p.m.—Clinic. Dr. C. B. Meding.

Herman Knapp Memorial Eye Hospital—

2 p.m.—Operations. Dr. O. Schirmer.

Long Island College Hospital, Brooklyn—

1-2:30 p.m.—(Polhemus Memorial Clinic). Cases associated with brain lesions.

2 p.m.—Clinic. Drs. H. M. Smith, R. M. Rogers, J. L. Behan.

Manhattan Eye, Ear and Throat Hospital—

2-4 p.m.—1. Demonstration: mounted pathologic specimens. 2. Wassermann and other serological reactions. 3. Food and pollen allergy (sensitiza-

tion) with sensitized patients; tests. 4. Demonstration: blood culture plates. Dr. J. G. Dwyer, pathologist.

X-ray exhibit. Dr. F. M. Law, roentgenologist.

1-3 p.m.—Clinic. Dr. Frank Van Fleet.

3-5 p.m.—Clinic. Drs. J. B. Emerson, Edgar S. Thompson.

Mount Sinai Hospital—

1:30 p.m.—Operations. Dr. C. H. May.

3 p.m.—Operations. Dr. Carl Koller.

New York Eye and Ear Infirmary—

1-2:30 p.m.—Clinic. Dr. G. H. Bell.

2:30-4 p.m.—Clinic. Dr. J. E. Weeks.

4 p.m.—Clinic. Dr. F. W. Shine.

Polyclinic Hospital—

2-3:30 p.m.—Clinic. Dr. Earle Conner.

Post Graduate Hospital—

1-3 p.m.—Rare ophthalmoscopic cases. Dr. M. Uribe Trencoso.

3-5 p.m.—Surgical clinic. Dr. Martin Cohen.

ABSTRACTS FROM MEDICAL LITERATURE.

BY W. F. HARDY, M.D.,

ST. LOUIS, MO.

SOME ECCENTRICITIES OF INDIAN OPHTHALMIC PRACTICE.

In a paper read at the Oxford Ophthalmological Congress last July and published in the *British Journal of Ophthalmology* for February, Col. R. H. Elliot, I.M.S., gives an account of the treatment of diseases of the conjunctiva by Indian pretenders to special knowledge. At certain seasons of the year catarrhal ophthalmia is exceedingly rife and for the most part the treatment of these cases is, he says, in the hands of women. It is

commonly thought that the Indian woman is a nonentity, but there could be no greater mistake; both in sickness and in health the Indian woman is a factor to be reckoned with. Where doctors are scarcest her responsibilities are greatest, and she does her best to rise to them without fear of failure. Most Indian wives and mothers have favorite prescriptions. Their remedies are very diverse. Some are comparatively harmless; for example human milk, which, especially when squirted into the eye straight from the breast, has a high reputation in India, as it had once in this country, for its healing power and possibly something to recommend it. Others are the quintessence of danger, and such are those prepared in the "laboratories" of the amateur village expert, usually an old lady whose reputation as eye doctor rests on her weight of years. She collects her herbs in the right phase of the moon and compounds them by means as devilish as her intentions are angelic. Her confidence is unshaken by failures. "It is written on the forehead of certain of her patients that they should 'go blind'; and what can she do to alter the inexorable decrees of fate? Meantime, if they will sit down she will place precious medicine in their eyes." India has much confidence in "specialists." A man will travel hundreds of miles to see such a one and spend the savings of a lifetime on the journey. He addresses the surgeon "as his god, his father, and his mother," surrenders himself, as at a shrine, for the cure to be performed. The native specialist uses pastes for insertion within the lower eyelid. Common ingredients of such preparations are the juice of the leaves of the tamarind tree (which is very acid and irritating), alum, various kinds of pepper, iron filings, human milk or urine, and cowdung. Each specialist has a personal receipt for the preparation of his or her choice. Many cases are seen of people, even families of children, blinded by these preparations. In cases of severe fever the native medicine man is in the habit of awakening the sick man out of his stupor by the insertion of some of the preparations within the eyelid, and not seldom the cornea is destroyed. Others use a variety of drops, some intensely irritating, whilst other applications such as human urine, owe their potency for mischief to the organisms they contain. It is said that many midwives make a practice of washing the infants' eyes in the mother's urine immediately after birth. Strange methods of treatment are to be found. Rubbing the sole of the foot corresponding to the eye affected to "bring down the heat from the

head" is one, the treatment of presbyopia by anointing the eyes daily with an ointment made of butter and the ashes of rabbit's dung is another. Corneal trouble is treated by engaging a friend to chew raw onions and with his mouth full of the half masticated mass to blow on the affected eye. Trachoma, though a disease completely remediable to prompt and proper treatment, takes an appalling toll of sight in India. But the affected man waits until the harvest is gathered, or for friends to go with him to the hospital. More go to the native specialist, who scrapes the inner surface of the eyelids, rubbing in burned powders, a treatment that leaves black streaks in the scarred tissue. Deep scars of the skin may be found, the effects of past cauterizations, made to evert the inturned lids. Sometimes these succeed, more often they fail or destroy too much tissue, with unfortunate results. The malingerer rubs some lime, scraped from the cottage walls, into his eye to produce conjunctivitis. It is recognized by the limitation of the effect to the lower conjunctiva and the milky appearance of the part. The actual lime is never seen. The trick was once in vogue with the Madras police, but the recognition of the origin of the malady soon stopped it. Occasionally the trick leads to blindness from an overdose. Astrology plays a great part in determining the time for medical proceedings. An operation can only be performed at a favorable season; it is useless to oppose the ideas of the patients, for hope is the essence of success, but a little tact may persuade the astrologer that the surgeon's time is the favored time.

USE OF CARTILAGE GRAFTS IN WOUNDS OF THE EYE.

Dr. Magitot reported two cases of a lacerating wound of the eye caused by a projectile. In spite of the inevitable enucleation of the debris it was possible to make a mobile stump, thus permitting of the satisfactory use of a prothesis. In one of the cases operation was rendered exceedingly complex by the laceration of the inferior eyelid, which Magitot was obliged to repair piece by piece. The mobile stump was made with the aid of a cartilage graft. Histologically this tissue is insusceptible to attack by micro-organisms, and its consistence makes it possible to suture to it the two lateral eyeball muscles, thus providing for lateral movement. This procedure is applicable in old as well as recent

cases. The muscles were repaired in such a way that they could be recovered later, if necessary. When many months after the wounding all the inflammatory phenomena had disappeared, nothing interfered with the removal of the dead cartilage and its replacement by a piece of living cartilage taken from the patient himself. One is assured of the survival of the graft. One of the patients had to be subjected to a second operation.—(Paris letter of March 29, 1917, *Journ. A. M. A.*, April 28, 1917.)

REPORT OF A CASE OF BLINDNESS CURED BY AN INTRANASAL OPERATION.

The rôle of nasal conditions in causing ocular disturbances both of a reflex and structural nature is being more and more impressed upon the medical profession. In the past it was deemed sufficient to examine for lues in obscure ocular conditions and prove it or exclude it. Now no examination is complete even in the presence of syphilis until the nasal cavities and sinuses have been excluded or implicated. Pfister, of Milwaukee (*Wisconsin Med. Jour.*, V. 15), has added one more case report to the long list of instances in which nasal operation resulted in a cure of the ocular disturbance. He states that the causes of blindness may be either intra or extracranial. The symptoms and signs are most usually bilateral in the intracranial variety, at the most they are not unilateral very long, whereas in nasal conditions we have to deal more frequently with one-sided eye trouble. All supraorbital headaches and the headaches at the root of the nose, with tenderness of the supra-orbital region point to sinus disease or intranasal pressure of some kind. Pus need not necessarily be present in the nose. Any interference with the drainage and ventilation of the sinuses may prove a causative factor. The author reports a unilateral blindness in a girl of twenty in whom the tests for lues and intracranial tumor were made. X-ray examination for enlarged pituitary was done. The question arose as to whether the blindness was due to an intra- or extracranial condition. A surgeon was consulted with regard to a decompression operation. He in turn referred the patient to Pfister for intranasal examination. Evidence pointed to the nose as the probable cause. The right eye showed puffiness and exophthalmus. Nasal operation revealed when the middle turbinate was removed, the presence of

polyps, enlarged ethmoidal cells and granulomatous material in the posterior ethmoidal region. No satisfactory explanation for the puffiness of the upper eyelid presented itself, as there was no pus coming from the frontal duct. The frontal sinus was opened externally and a mucocele was found filling the cavity and exerting pressure. Recovery was uneventful and sight was restored to normal within two weeks.

(Too much emphasis should not be placed on the unilaterality of ocular conditions due to nasal cause. The cells of the sphenoid body are very variable as regards size and position, and it is quite possible for a large sphenoidal cell, say on the right side, to extend superiorly across the whole width of the sphenoid and be able to involve both optic nerves simultaneously. Dr. Sluder has pointed this out and also that rarely is one cell pathological and its fellow normal. The rule is that both are affected. In cases such as described by Pfister, even had both optic nerves shown a neuritis, it is incumbent upon the careful observer to exclude the nose before rushing the patient into a decompression operation.)

THE ABSORPTION OF APOMORPHIN AND MORPHIN THROUGH THE CONJUNCTIVA.

Macht, of Baltimore (*Journ. A. M. A.*, April 28, 1917), abolishes the ophthalmologist of drug nihilism. Some of the most strikingly beneficial therapeutic effects have been produced in the treatment of eye conditions. It is surprising, the author states, that so few cases of drug absorption and intoxication through the eye and its appendages are on record. Some deny the possibility of such absorption through the conjunctiva and the lacrimal apparatus. An examination of the literature establishes the authenticity of such poison cases. Instances of cocain and atropin poisoning are enumerated. Macht's pharmacological investigations of opium alkaloids revealed the fact that certain drugs can be quickly absorbed through the conjunctiva. Apomorphin sprinkled into the eye of a dog is followed by emesis in from two to five minutes. The same result occurs when a 1 or 2 per cent. solution of the drug is used. In all the experiments care was used to eliminate any possibility of the animals absorbing the drug by licking. Even in animals under anæsthesia and in a moribund state retching movements followed

the administration of apomorphin through the eye. Vomiting is produced in dogs nearly as easily with morphin as with apomorphin and here again emesis followed insufflations of morphin powder into the conjunctival sac, although after a somewhat longer interval (five or more minutes). Macht has had no experience with morphin or apomorphin used locally in human beings. His experiments, however, serve to emphasize the possibility and importance of drug absorption through the conjunctiva and to render the ophthalmologists more cautious in the employment of toxic alkaloids.

Further experiments seem to indicate that the absorption of the foregoing drugs takes place through the blood and lymph channels and not altogether through the nasal duct.

A NEW OCULAR MUSCLE SYMPTOM IN EXOPHTHALMIC GOITER.

Suker, of Chicago (*Journ. A. M. A.*, April 28, 1917), in the examination of a number of exophthalmic goiters, noted a peculiar action of the lateral eye muscles in many. "After extreme lateral rotation of the eyes, either to the right or to the left, with the head fixed and with fixation of an object at this point maintained for a second or two, on attempting to follow this fixation point as it is rapidly swung into the median line, one of the eyes—it may be either—fails to follow the other in a complementary manner into proper convergence and fixation for this point when it is brought into the median plane. Either the right or the left eye makes a sudden rotation into the fixation with its fellow, but before it does so an apparent divergent strabismus is manifest." The muscle balance was determined in each case. In those cases with an exophoria the phenomenon was more marked; those with an exophoria showed the symptom in lesser degree. In making the test the object is held 3 or 4 feet from the patient, so as not to overtax convergence. The greater the exophthalmos the more marked the symptom. The apparent diverging eye, when it does assume the proper convergence and fixation, does so in a more or less jerky manner. The more pronounced the other ocular signs as those of Stellway, Moebius and von Graefe the more evident is this inability in proper lateral rotation. A paresis or paralysis of a lateral muscle must, of course, be excluded. This sign is about as frequent as those of von

Graefe and Moebius, and is due no doubt to the same underlying conditions that produce the other ocular muscle symptoms, namely, a disassociation in the functions of the sympathetic, and the extraocular motor nerves of the eye. Muscle exhaustion may also be a factor. The author suggests that this sign be looked for and considered as an additional sign in the category of exophthalmic goiter symptoms. Suker designates it as "definite complementary fixation in lateral eye rotations."

FRAGILITAS OSSIIUM AND ITS ASSOCIATION WITH BLUE SCLEROTICS.

E. Bronson, in *The Edinburgh Medical Journal* of April, 1917, gives a thorough description of two families with hereditary fragility of the bones associated with grey-blue sclerotics, a summary of the literature of this peculiarity in relation to fragilitas ossium is presented, together with a general discussion of the whole subject, case reports of the congenital type, and an exhaustive bibliography.

The ætiology of the blue sclerotic has not been determined. All writers agree, however, that it is due to an increased transmission of the color of the choroidal pigment and not to any inherent coloring of the sclerotic.

Eddowes, Stephenson, and Peters think there is a want of quantity or quality to the fibrous tissue of the sclera, as for example, an actual thinning of this coat.

Conlon and Fridenberg consider an increase in the transparency of the sclera the more likely hypothesis, since they think if the sclera was thinner one would find cases of buphthalmos, posterior staphyloma, or axial myopia in these families, of which conditions we find no mention. Fridenberg suggests that the blue sclerotic and the lead-grey iris as well are due to a transparency dependent upon the absence of lime salts in the connective tissue elements of the sclera and iris. One of Bronson's cases, an infant of 11 months, dying while the family was under investigation, an eye was removed and examined histologically. The sclerotic was found of normal thickness and the size and number of fibres normal for a child of that age. Since this infant had the typical blue sclerotic, the more probable theory of its ætiology is that of increased translucency, rather than decrease in thickness.

Bronson makes the following summary of his findings:

1. In the first family, consisting of fifty-five individuals in four generations, twenty-one had grey-blue sclerotics.

2. Of these twenty-one, only one, a 6 year old boy, has had no fractures. The number of fractures in any individual is not excessive, and they require a certain amount of force for their production. Sprains and dislocations are common. The majority of adults are in good general health, and are able to do ordinary work. The mortality among infants with blue sclerotics is in this family greater than among those not so affected.

3. The heads of those individuals in this family who have blue sclerotics and bone fragility show an abnormal prominence of the frontal and occipital bones. In two of them there is a history of patency of the fontanelle throughout life.

4. Of eight adults with blue sclerotics and fractures, seven had varying degrees of deafness, the eighth died at 23 without deafness.

5. In the second family, consisting of eight individuals in three generations, seven have blue sclerotics and four of these have fractures, two others have a tendency to sprains. All are able to lead an ordinary life, except one child, who is somewhat crippled and incurs fractures too easily to be able to run and play.

6. In this family the head has the characteristic shape frequently seen in osteogenesis imperfecta congenita, namely, increase in the bitemporal diameter so that the ears are turned outward and downward, slight downward tilting of the axis of the eyes, and an underhung lower jaw.

7. There is no tendency as in the first family to deafness, nor is there any to arterial sclerosis.

8. In both families the stature of the affected individuals is below the average, with the exception of three members of the first family.

9. The aetiology is unknown. The hereditary factor is present in only a limited number of cases.

10. Clinically, the condition is characterized by defective cranial ossification, and by numerous fractures without violence. The earlier the onset the greater is the liability to fracture. Dislocations also occur. Blue sclerotics may or may not be associated.

11. A limited number of metabolic studies indicates an increased loss of calcium.

12. In both prenatal and postnatal onset of symptoms pathological findings indicate a deficient functional activity of the osteoblasts. In respect to other abnormalities writers disagree.

THE TREATMENT OF BURNS BY PARAFFIN.

Since deep burns of the face, involving the eyelids, almost always entail a prolonged and unsatisfactory course of healing, resulting finally, as a rule, in an unsightly and disfiguring condition, any procedure in their handling which promises a definite improvement, cannot help but be of interest to the ophthalmic surgeon.

Lieut.-Col. A. J. Hull, in *The British Medical Journal* of January 13, 1917, gives an account of the paraffin treatment of burns. It was originally introduced by Dr. Barthe de Sandfort in his treatment of soldiers in France. His preparation of paraffin he called ambrine, whose composition has been kept secret and is the property of the Ambrine Co., Paris.

The treatment consisted in washing the burns with sterile water, drying and painting or spraying a layer of ambrine over the surface. This was then covered with a thin layer of wool, and a second coat of ambrine applied. The preparation solidifies almost instantly, and a thicker layer of wool and a bandage are then applied.

Dr. Hull has produced a paraffin having the mechanical properties of ambrine by subjecting ordinary hard paraffin to a temperature of 130 degrees by means of superheated steam, and he thinks the superheated steam is the essential thing in the manufacture of ambrine.

Observations of Dr. Sandfort's treatment and experiments with ambrine, carried out in a military hospital, gave one the impression that the treatment was valuable. Burns healed with rapidity, constitutional symptoms rapidly abated, pain was reduced to a minimum, and scarring appeared to be obviated or at any rate was not apparent. The need for grafting large wounds appeared to be avoided, since the burns healed so rapidly with healthy granulations, that there appeared nothing to be gained by grafting. The patients were singularly free from sepsis.

The conclusion arrived at from experimenting with the ambrine treatment was, that mild burns healed with singular rapidity, and severe cases recovered which would have been unlikely to recover by the ordinary methods of treatment. Observers who had had large experience with burns treated by picric acid, ointments, and other methods in ordinary use, were unanimously of the opinion that the paraffin treatment was superior to these older procedures.

The excellent results obtained would appear to be due to mechanical causes. The protection of the burn from the air, the protection of the newly-formed granulations from damage, the splint-like effect of the wax in holding the injured tissue immobile and at rest, appear to be the attributes which produce the effect.

Better results have been obtained by the addition of certain antiseptic and stimulating substances to the ambrine or paraffin preparation. The wounds become clean more rapidly, pain is decreased, the offensive smell associated with the ambrine dressings is avoided, and the burns heal more quickly.

After much experimenting with various combinations of paraffin and antiseptic substances, there was finally adopted, as being superior in its results to ambrine and all other tried preparations, the following combination:

Resorcin or beta naphthol.....	1 per cent.
Eucalyptus	2 per cent.
Olive oil	5 per cent.
Paraffin molle	25 per cent.
Paraffin durum	67 per cent.

This mixture is melted and applied at 50 degrees, in much the same way as in Sandfort's ambrine procedure. Dressings are usually changed daily.

With this treatment burns of the face heal with a new healthy skin without scarring.

"The rapidity of healing, the absence of sepsis or pain, the healthy new skin resulting without contractile cicatrices or deformity, have been really remarkable," the author states.

THE USE OF PRISMS IN OPHTHALMIC PRACTICE.

Willets, of Pittsburgh, discusses this subject in the *Pennsylvania Med. Jour.*, April, 1917. Deviations of any kind are dependent on: (1) cerebro-psychic exhaustion; (2) lesions along the nerve tracts; ((3) anatomic, skull and orbital malformations, false insertions, etc.; (4) compensatory, muscle hypertrophy and muscle degeneracy. There is an abnormal functional condition of the muscle in heterophoria not due to any pathologic condition of the muscle. In many cases of orbital malformations false attachment of ocular muscles are compensatory and are normal for that particular eye. Partial tenotomies have never appealed

to Willetts, though the procedure of Todd does. In studying the subject of phorias the patient must be classified as well as his heterophoria. The correction of the ametropia by lenses and heterophoria by prisms will not avail if the exhaustion is cerebro-psychic in character. Coming directly to the subject of prisms, Willetts asks the question if the use of prisms base in tend to produce convergence insufficiency and prisms base out convergence excess, so that in both cases they ultimately increase the deviation they are designed to correct. He has seen cases where the deviation became less and the strength of the prism had to be diminished. A large number showed the deviation remaining stationary for years. In some others the deviation increased, but the author thinks that in these cases this additional deviation was present all the time as a latent insufficiency. A comparison is made with cycloplegia in hyperopia. If a prism is prescribed, and the deviation increases, the amount revealed is a latent insufficiency rather than an increased insufficiency, due to the prism. Chromatic aberration and astigmatism of prisms is confined to the higher degrees and are not pertinent to the subject of the correction of heterophoria. Willetts does not advocate the use of prisms at home. Prism exercises do not find favor with him except in the case of a weak ocular muscle, convalescing from a paralysis of a specific nature and some instances of muscle degeneracy.

DIFFICULTIES OF DIAGNOSIS WHEN DEVELOPMENT OF A CHOROID SARCOMA BEGINS.

B. Castresana.—A diagnosis of sarcoma of the choroid can be made by means of the ophthalmoscope, using these symptoms as supporting evidence: the haze which troubles the patient; the luminous sensations; scotoma with progressive diminution of the visual field; metamorphosis when the tumor is situated at the macula; the increase of tension.

The presence of these signs added to the ophthalmoscopic observations: the abnormal position; the slight motility; the presence of a vascular net of new formation in the back of the retina in the region in which the tumor is developed; lastly the presence in this region of small hæmorrhagic foci. All these form a clinical picture sufficiently perfect to diagnose melanic sarcoma of the choroid in the early period of its evolution.—(Abst. in *Surg., Gyn. and Obst.*, March, 1917, p. 314.)

BOOK REVIEWS.

THE AMERICAN ENCYCLOPEDIA AND DICTIONARY OF OPHTHALMOLOGY. Edited by Casey A. Wood, M.D., C.M., D.C.L. Assisted by a large staff of collaborators. Fully illustrated. Volume X. Lancet to Muscles, Ocular. Chicago, Cleveland Press, 1917.

From the many interesting smaller items contained in this volume four large articles stand forth pre-eminently, namely: (1) Charles F. Prentice on lenses and prisms, centering of and method of manufacturing; a monograph of the highest type and excellently well illustrated; (2) Localization of ocular foreign bodies, by Edgar S. Thomas, in which, as is natural, particular attention is given to Roentgen ray methods; (3) Muscles, ocular, by G. C. Savage, whose well-known views are here in toto set forth once more and elucidated by many illustrations. Another shorter article of special interest is the one by Lloyd Mills, on Military Surgery of the Eye.

All in all, we think that enough praise cannot be given to the magnificent work.

CATARACT: SENILE, TRAUMATIC AND CONGENITAL. By W. A. Fisher, M.D., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. 1917. \$1.50.

This monograph is written with the purpose of helping to make the intracapsular extraction of cataract more popular than all the publications on this interesting subject have hitherto been able to make it. After reports on different methods, the author describes his own modification of the Smith method, in which his lid-holders and needle play a special role and seem to be of special usefulness. He recommends practicing the operation on the eyes of four weeks old kittens, since these are more like human eyes.

A very interesting monogram on one of the most important subjects in ophthalmology, by a man of large experience.

OPHTHALMIC LENSES AND PRISMS. An essay contributed to the American Encyclopedia of Ophthalmology. By Charles F. Prentice, M.E., illustrated with 128 original diagrams and 4 plates from the pen of the author. Complimentary edition. Chicago, Cleveland Press, 1917.

This is a beautiful special edition of the author's most excellent article in the American Encyclopedia of Ophthalmology, Vol. X. It is graced by a fine picture of the author.

TEXT-BOOK OF OPHTHALMOLOGY. By Hofrat Ernst Fuchs. Authorized translation from the 12th German edition; completely revised and reset, with numerous additions specially supplied by the author and otherwise much enlarged. By Alexander Duane, M.D. With 462 illustrations. Fifth edition. J. B. Lippincott Co., Philadelphia and London. Price \$7.00.

To praise and recommend Fuchs' Text-Book any higher than has been done by us before would be well nigh impossible. There is no department of ophthalmology that is not treated exhaustively and in a masterly way by the author. Duane's translation is of especial value, since it is not simply a transcription of the original text into the English language, but gives changes in views which the progress of our science has demanded. These add to the usefulness of the book. The publishers' work is also excellent.

DISEASES OF THE EYE. Handbook of ophthalmic practice for students and practitioners. By George E. de Schweinitz, M.D., LL.D. Eighth edition, thoroughly revised and enlarged. 754 pages, 386 text illustrations, and 7 lithographic plates. W. B. Saunders Co., Philadelphia and London, 1916. Cloth, \$6.00, half morocco \$7.50.

Among the many good American Text Books on Ophthalmology this is certainly one of the best, and it has kept up its reputation through its different editions. Text, illustrations, print, etc., are of the best. However, why the publishers keep on making these voluminous text-books thicker and thicker, heavier and heavier, and therefore unhandier, is an enigma. Why not divide them into several volumes? ALT.